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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/708,422	03/02/2004	David A. Trueba	10437.0074.NPUS01	2421

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HOWREY LLP
C/O IP DOCKETING DEPARTMENT
2941 FAIRVIEW PARK DRIVE, SUITE 200
FALLS CHURCH, VA 22042-7195

EXAMINER

OH, TAYLOR V

ART UNIT	PAPER NUMBER
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1625

DATE MAILED: 11/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/708,422	Applicant(s) TRUEBA ET AL.	
	Examiner Taylor Victor Oh	Art Unit 1625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) 7-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/15/04</u> . | 6) <input type="checkbox"/> Other: _____ |

The Status of Claims :

Claims 1-18 are pending.

Claims 1-6 have been rejected.

Claims 7-18 has been withdrawn from consideration.

DETAILED ACTION

Priority

I. None.

Drawings

II. The drawing filed on 3/02/04 is accepted by the examiner.

Election/Restrictions

Applicant's election with traverse of Group I, namely Claims 1-6 on 8/29/05 is acknowledged.

Claims 7-18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to the nonelected Group II, there being no allowable generic or linking claim.

Applicants argue in the followings:

1. The features of independent claim 1 of Group I are contained in independent claim 7 of Group II;
2. The process of independent claim 7 of Group II contains steps common to the process of independent Claim1 of Group I; thereby disagreeing the examiner 's position regarding the scope of the searches required for two groups.

In response to applicants' argument regarding the restriction, regardless of sharing the common features between the two Groups, they are two distinct, unrelated, and different classes involved in the search of the unrestricted claims. In the instant application, the invention of Group I is directed to the process for separating acetaldehyde from methyl iodide by distillation , whereas the invention of group II is directed to the method for producing acetic acid comprising the steps of reacting methanol with carbon monoxide in a reaction medium in the presence of a catalyst. The process of separating acetaldehyde from methyl iodide and the process of producing acetic acid are two unrelated processes because their final products (acetaldehyde and acetic acid) are different. Thus, the scope of the searches with respect to the two Groups is different from each other. Furthermore, The search is a burden whether or not they are so closely related to their searches. Furthermore, M.P.E.P. Section 808.02 gives legitimate reasons for the Examiner to insist on restriction such as the case of separate classification, which indicates that" each distinct

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subject has attained recognition in the art as a separate subject for the inventive effort, and also a separate field of search .”

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

Claims 1-6 are objected to because of the following informalities:

In front of claims 1-6, the symbols “ [c1], [c2],[c3],[c4],[c5],[c6] ” are recited.

These expressions are improper. Appropriate correction is required.

In claim 1, the terms” Distilling, Measuring ,Adjusting” are recited as the capital letters in the middle of the claim limitations. These expressions are grammatically improper. Appropriate correction is required.

In claim 2, the terms” Distilling, Extracting, Measuring ,Adjusting” are recited as the capital letters in the middle of the claim limitations. These expressions are grammatically improper. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated clearly by Miura et al (US 5,625,095).

Miura et al discloses a process of separating acetaldehyde from the liquid containing acetaldehyde and methyl iodide by distillation; further, selectively extracting acetaldehyde with water (see col. 7, lines 15-18). The various compositions are analyzed at the time of charging the starting liquid, distillation condition, and top withdrawn liquid composition (see col. 12, lines 20-43):

Composition of charged liquid:

Methyl iodide	89.4 weight %
Methyl acetate	5.0 weight %
Acetic acid	5.0 weight %
Water	0.5 weight %
Acetaldehyde	0.07 weight %
Paraldehyde	0 weight %
Alkanes	0.01 weight %
Others	0.02 weight %

Distillation condition:

Reflux ratio	170
Charged amount	100 parts (285 kg/hr)
Withdrawn amount	0.19 part from top, 99.81 parts from bottom
Charging plate	70th plate from top
Top temperature	54° C.
Bottom temperature	82° C.

Top withdrawn liquid composition:

Methyl iodide	68.3 weight %
Methyl acetate	0 weight %
Acetic acid	0 weight %
Water	0.7 weight %
Acetaldehyde	29.0 weight %
Paraldehyde	0.1 weight %
Alkanes	1 weight %
Others	0.9 weight %

Furthermore, removal of the top withdrawn liquid from the system makes it possible to control the acetaldehyde concentration in the reactor (see col. 12 ,lines 45-47).

In addition, the composition of extraction materials (top withdrawn liquid, extracts, raffinate ,distillate, and the bottom products are shown below (see col. 13 ,line 34):

TABLE 1					
Composition (weight %)					
	Extraction material	Extract	Raffinate	Distillate	Bottom liquid
Methyl iodide	68.3	1.0	97.0	4.2	0
Formic acid	0	0	0	0	0.2
Water	0.7	76.8	0.2	2.4	99.8
Acetaldehyde	29.0	21.8	0.8	91.4	0
Paraldehyde	0.1	0	0.1	0	0
Alkanes	1.0	0	1.5	0	0
Others	0.9	0.5	0.4	2.0	0

This is identical with the claims.

Claim Rejections - 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miura et al (US 5,625,095).

Miura et al discloses a process of separating acetaldehyde from the liquid containing acetaldehyde and methyl iodide by distillation; further, selectively extracting acetaldehyde with water (see col. 7 ,lines 15-18). The various compositions are analyzed at the time of charging the starting liquid, distillation condition, and top withdrawn liquid composition (see col. 12, lines 20-43):

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Composition of charged liquid:

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Methyl acetate	5.0 weight %
Acetic acid	5.0 weight %
Water	0.5 weight %
Acetaldehyde	0.07 weight %
Paraldehyde	0 weight %
Alkanes	0.01 weight %
Others	0.02 weight %

Distillation condition:

Reflux ratio	170
Charged amount	100 parts (285 kg/hr)
Withdrawn amount	0.19 part from top, 99.81 parts from bottom
Charging plate	70th plate from top
Top temperature	54° C.
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Top withdrawn liquid composition:

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Others	0.9 weight %

Furthermore, removal of the top withdrawn liquid from the system makes it possible to control the acetaldehyde concentration in the reactor (see col. 12 ,lines 45-47).

In addition, the composition of extraction materials (top withdrawn liquid, extracts, raffinate ,distillate, and the bottom products are shown below (see col. 13 ,line 34) :

TABLE 1

	Composition (weight %)				
	Extraction material	Extract	Raffinate	Distillate	Bottom liquid
Methyl iodide	68.3	1.0	97.0	4.2	0
Formic acid	0	0	0	0	0.2
Water	0.7	76.8	0.2	2.4	99.8
Acetaldehyde	29.0	21.8	0.8	91.4	0
Paraldehyde	0.1	0	0.1	0	0
Alkanes	1.0	0	1.5	0	0
Others	0.9	0.5	0.4	2.0	0

However, the instant invention differs from the prior art in that the adjustments of heating rate and the water feed rate to the extraction are not shown in the prior art.

Even so, regarding the adjustment of heating rate, the reference does teach the condition of the overhead at a temperature of 55⁰ C or higher (see col. 8 ,lines 22-26) at which the separation of acetaldehyde and methyl iodide can be conducted by distilling the mixed liquid containing acetaldehyde and methyl iodide; also, controlling the operation pressure and the operation temperature in a distillation column has made it possible to separate and remove acetaldehyde (see col. 9 ,lines 46-50). From these teachings, it is quite possible to the skilled artisan in the art to be motivated to adjust the heating rate in order to make the separation process of acetaldehyde and methyl iodide more efficient.

With respect to the adjustment of the water feed rate to the extraction, the prior art does mention that the extraction is carried out at a temperature of 0 to 100⁰ C for 1 second to 1 hour (see col . 7 , lines 57-58); it also recommends to use every suitable apparatus known in terms of technique and cost (see col. 7 ,lines 60-63). Furthermore,

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Table 1 shows the % of the water composition in the extraction material (see col. 13 ,line 34). Therefore, it would be obvious to the skilled artisan in the art to figure out how to adjust the water feed rate to the extraction.

Miura et al expressly discloses the process of separating acetaldehyde from the liquid containing acetaldehyde and methyl iodide by distillation; further, selectively extracting acetaldehyde with water (see col. 7 ,lines 15-18). Furthermore, it does offer guidance that controlling the operation temperature in a distillation column along with the suitable extractor has made it possible to separate and remove acetaldehyde efficiently (see col. 9 ,lines 46-50). Therefore, it would have been obvious to the skilled artisan in the art to be motivated to adjust heating rate and the water feed rate to the extraction in order to optimize the process of separating acetaldehyde from the liquid containing acetaldehyde and methyl iodide. This is because the skilled artisan in the art would expect such modifications to be efficient and cost-saving as shown in the prior art (see col. 7 ,lines 60-63) and (see col. 9 ,lines 46-50).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taylor Victor Oh whose telephone number is 571-272-0689. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cecilia Tsang can be reached on 571-272-0562. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

May 12/05
11/12/05